EXHIBIT A

EXHIBIT

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF INDIANA
FORT WAYNE DIVISION

RYAN KLAASSEN, JAIME CARINI, D.J.B., by and though his next friend and father, DANIEL G. BAUMGARTNER, ASHLEE MORRIS, SETH CROWDER, MACEY POLICKA, MARGARET ROTH, and NATALIE SPERAZZA,	)	
Plaintiffs,	)	Case No. 1:21-cv-00238
vs.	)	
THE TRUSTEES OF INDIANA UNIVERSITY,	)	
Defendant.	)	

DECLARATION OF COLE BEELER, M.D.

I. Background

1. I am over 18 years of age. This declaration is based upon my own personal and professional knowledge and experience.

2. I am competent to testify as a medical expert to the facts and matters set forth herein. A true and accurate copy of my C.V. is attached hereto as **Exhibit A**.

3. I am currently an Assistant Professor of Clinical Medicine at the Indiana University School of Medicine. I earned my B.S. and my M.D. from Indiana University.

4. I am dual Board certified by the American Board of Internal Medicine in Infectious Disease and Internal Medicine. I am a member of the Infectious Diseases Society of America.

5. I am a member of Indiana University's Restart Committee. I serve on its

Modeling and Data Monitoring subgroup.

II. Analysis

A. COVID-19

6. COVID-19 is an infectious disease caused by the novel coronavirus (SARS-CoV-2) that primarily spreads through respiratory droplets and aerosol transmission.

7. People of all ages can contract and transmit COVID-19.

8. People who catch COVID-19 may suffer from immediate severe illness and/or suffer long-term ongoing health problems, extending several weeks or months. Individuals infected with COVID-19 can suffer these long-term negative health effects even if they were initially asymptomatic. COVID-19 can also be fatal. CDC, *Benefits of Getting a COVID-19 Vaccine, https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits.html.*

9. Certain types of individuals are at increased risk of suffering severe illness or death if they contract COVID-19, and thus are more likely to need more serious medical intervention, including hospitalization, intensive care, and a ventilator. Individuals who are at increased risk of suffering severe COVID-19 include:

a. Adults over age 45;
b. Disabled individuals;
c. Members of many racial and ethnic minority groups;
d. Immunocompromised individuals;
e. Current or former smokers;
f. Individuals who are overweight or obese;
g. Individuals who have received organ or blood stem cell transplants;
h. Individuals who have suffered a stroke; and
i. Individuals with certain other underlying medical conditions, including, among others, cancer, chronic kidney disease, chronic lung diseases, dementia and other neurological conditions, diabetes (type 1 or type 2), Down syndrome, heart conditions, HIV infection, liver disease, sickle cell disease, cerebrovascular disease, and substance use disorders.

CDC, *People with Certain Medical Conditions*, *https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html*; CDC, *People with*

Underlying Medical Conditions at Increased Risk from COVID-19, https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/underlying-conditions.html.

10. Even though COVID-19 more often affects children less severely than adults, COVID-19 has also been shown to cause severe illness in children. Like adults, children with underlying medical conditions are at increased risk of suffering more severe illness if they contract COVID-19.

11. Additionally, all individuals, including children, who contract COVID-19 risk giving it to others, including friends, family, and other individuals with whom they interact, who may suffer severe illness or death.

B. Brief History of the Pandemic

12. COVID-19 was first identified in Wuhan, China in late 2019.

13. According to the Indiana State Department of Health ("ISDH"), Indiana's first case of COVID-19 was confirmed on March 6, 2020, and Indiana's first COVID-19-related death was reported on March 16, 2020. *See* Indiana's Novel Coronavirus Response (last visited June 27, 2021), *available at*: https://www.coronavirus.in.gov/ ("IN COVID-19 Response").

14. Since March 6, 2020, Indiana has had over 750,000 confirmed COVID-19 cases and over 13,000 deaths. *See* Indiana COVID-19 Data Report, *https://www.coronavirus.in.gov/.* According to the CDC, an estimated 25.8% of Indiana's population has been infected with COVID-19. 18.4% of Indiana's positive COVID-19 cases have been reported by individuals between the ages of 20 and 29. Individuals aged 20 through 29 have reported more positive COVID-19 cases than any other age demographic. A small number of those individuals also have died from the virus.

15. The CDC currently estimates that there have been approximately 33.5 million

cases of COVID-19 in the United States and over 600,000 people have died from COVID-19 in the United States. *See* CDC, COVID Data Tracker, Nationwide Commercial Laboratory Seroprevalence Survey, *https://covid.cdc.gov/covid-data-tracker/#national-lab.*

16. Nationwide, individuals aged 20-29 accounted for more than 20% of all confirmed COVID-19 cases between June and August of 2020. CDC, *Changing Age Distribution of the COVID-19 Pandemic-United States, May-August 2020* (pub. Oct. 2, 2020), *https://www.cdc.gov/mmwr/volumes/69/wr/mm6939e1.htm.*

17. The New York Times reports that over 700,000 cases of COVID-19 have been linked to colleges and universities in the U.S. since the pandemic began and more than 260,000 COVID-19 cases have been linked to colleges and universities just since January 1, 2021. *Tracking Coronavirus Cases at U.S. Colleges and Universities*, The New York Times, *https://www.nytimes.com/interactive/2021/us/college-covid-tracker.html*.

18. Since July 2020, IU has had almost 12,000 students test positive for COVID-19. *See* IU COVID-19 Testing Dashboard, *https://www.iu.edu/covid/dashboard/all.*

C. COVID-19 Vaccinations

19. We are likely to stop the spread of COVID-19 only when we achieve population immunity, also known as "herd immunity."

20. Widespread COVID-19 vaccination is a critical tool in achieving herd immunity.

21. The scientific community has not yet determined the percentage of people who need to be protected from COVID-19 to achieve herd immunity. In fact, because the virus continues to mutate, which results in variants, experts remain unsure whether achieving herd immunity from COVID-19 is truly possible.

22. Consequently, vaccinating individuals against COVID-19 currently is the leading prevention strategy to protect individuals from the virus and end the pandemic. CDC, *Guidance*

for [IHEs], https://www.cdc.gov/coronavirus/2019-ncov/community/colleges-universities/index.html.

23. There are three COVID-19 vaccinations available in Indiana at no cost: the Pfizer-BioNTech vaccine, the Moderna vaccine, and the Johnson & Johnson vaccine (collectively, "COVID-19 Vaccines"). *See* State of Indiana Vaccination Information and Planning, *About the vaccine*, https://www.coronavirus.in.gov/vaccine/.

24. Each of the COVID-19 Vaccines has been proven safe and effective. *COVID-19 Vaccine: It's our shot, Hoosiers* (updated June 5, 2021), https://www.coronavirus.in.gov/files/21_IN%20Vaccine%20effectiveness_6-2.pdf at 1; *see also, e.g.*, ISDH COVID-19 Vaccine FAQs at 1, https://www.coronavirus.in.gov/files/General%20Tool%20Kit%20Condensed%20FAQ%20and%20Links%203.29.21.pdf ("The vaccine has been found in trials to be 95 percent effective in preventing COVID-19 infections . . ."). Each was developed using long-standing science and scientific techniques that are not experimental. Each went through all the federally mandated stages of clinical trials, which include extensive testing and monitoring. Each has received and continues to undergo the most intensive safety monitoring in U.S. history. The fact that the COVID-19 Vaccines are currently available under Emergency Use Authorization in no way undermines their safety or efficacy.

25. The COVID-19 Vaccines are extremely unlikely to cause serious side effects that could result in long-term health problems. CDC, *Safety of COVID-19 Vaccines*, https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/safety-of-vaccines.html.

26. The COVID-19 Vaccines help prevent the spread of COVID-19 and are effective against the COVID-19 variants that have been detected in Indiana. ISDH, *Variant Details*, https://www.coronavirus.in.gov/map/VariantDetails.pdf.

27. Because it takes the human body time to build antibodies to COVID-19,

individuals who receive a COVID-19 Vaccine are considered "fully vaccinated" two weeks after their second dose of a two-dose vaccine or two weeks after a one-dose vaccine.

28. Fully vaccinated individuals are less likely to catch COVID-19 if exposed to it and less likely to spread it to others.

29. The COVID-19 Vaccines also help stop mutation of COVID-19, which helps prevent the emergence and spreading of variants.

30. The COVID-19 Vaccines provide a known level of resistance to and protection from COVID-19 for a sustained period of time. Conversely, while individuals who have had COVID-19 might have some antibodies even after their infection has passed that provide protection against COVID-19, the amount of protection that these individuals have against the virus varies from person-to-person and wanes over time. As these individuals' natural immunity decreases, their risk of contracting COVID-19 increases.

31. Accordingly, the CDC and the ISDH recommend that even individuals who have had COVID-19 receive the COVID-19 Vaccine because the vaccine will provide these individuals with additional protection against the virus. *Frequently Asked Questions about COVID-19 Vaccination*, https://www.cdc.gov/coronavirus/2019-ncov/vaccines/faq.html.

32. The CDC also recommends that children twelve and older receive the COVID-19 Vaccine as soon as possible because vaccinating minors helps to protect the minor, their families, and other individuals with whom they interact.

33. While the CDC has advised that it has received reports of myocarditis and pericarditis in adolescents and young adults after COVID-19 vaccination, it and the ISDH still recommend that all individuals age 12 and older receive a COVID-19 Vaccine because the reports of myocarditis and pericarditis are rare and the benefits of COVID-19 vaccination still far outweigh the known and potential risks. In fact, COVID-19 itself presents the risk of myocarditis

and pericarditis. CDC Children & Teens; CDC, *Myocarditis and Pericarditis Following mRNA COVID-19 Vaccination*, https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/myocarditis.html.

34. Additionally, people with underlying medical conditions can receive the COVID-19 vaccine as long as they have not had an immediate or severe allergic reaction to a COVID-19 Vaccine or its ingredients.

D. Current COVID-19 Risks

35. The COVID-19 pandemic is ongoing. Currently, the CDC advises that the risk of community transmission of COVID-19 in Indiana is "moderate." Hoosiers continue to report hundreds of new COVID-19 cases each day.

36. Additionally, variants of the COVID-19 virus continue to develop and spread throughout the country. These variants increase the risks associated with contracting and spreading COVID-19 because they spread more easily than the original strain of COVID-19 and can cause more severe infection.

37. Indiana, specifically, has seen an increase in variants of the original COVID-19 strain. Over 60% of the samples tested in Indiana are positive for a variant, and the most recent variant—the Delta variant—is confirmed to be present in Indiana.

38. COVID-19 remains a particular threat to those who are unvaccinated.

39. According to the ISDH, unvaccinated Hoosiers constitute 99.3% of COVID-19 cases in Indiana, and the odds of an unvaccinated Hoosier who contracts COVID-19 being hospitalized are 1 in 525, as compared to 1 in 50,394 for fully vaccinated Hoosiers. https://www.coronavirus.in.gov/files/21_IN%20Vaccine%20effectiveness_6-2.pdf.

40. IU's ability to consistently test its students for COVID-19, particularly those individuals who are unvaccinated, is critical to its ability to respond quickly to COVID-19 outbreaks and help stem the spread of the virus as we work towards herd immunity. If IU is

unable to regularly test its unvaccinated students for COVID-19, the risk of undetected viral spread on IU's campuses and surrounding communities increases significantly and may even affect vaccinated or previously infected constituents via viral breakthrough.

E. Response to Plaintiffs' Expert

41. Although COVID rates are declining, the etiology behind this is potentially obscured by improved weather (temperature, humidity, UV all favorable for blunting transmission). SARS-2 is a respiratory virus and will likely have seasonality like other respiratory viruses. Murray, Piot, The Potential Future of the COVID-19 Pandemic: Will SARS-CoV-2 Become a Recurrent Seasonal Infection, *https://jamanetwork.com/journals/jama/article-abstract/2777343*. Coupled with an unknown fraction of the population that has neither been infected or vaccinated, uncertain durations of clinical immunity after natural infection, and the potential for breakthrough variants (e.g. B 1617-2), the state of the pandemic over the coming winter is still very uncertain.

42. In my expert opinion, the degree of unknowns associated with all of Dr. McCullough's statements as well as significant risks to the collegiate and county communities that can be effectively avoided with use of the vaccine, make a mandate the safest way to protect our constituents, their families, and their counties from a second inevitable rise in cases over the winter.

Herd Immunity

43. Indiana has not reached herd immunity.

44. Herd immunity is based on the infectivity and R_0 of the virus. The herd immunity threshold is still unknown for this virus. In fact, many authors do not believe herd immunity is possible with this virus. Kadkhoda, Herd Immunity to COVID-19: Alluring and Elusive,

https://academic.oup.com/ajcp/article/155/4/471/6063411?login=true; Taylor, COVID-19: Is Manaus the final nail in the coffin for natural herd immunity?) https://www.bmj.com/content/372/bmj.n394.short; Tkachenko et al, Time-Dependent Heterogeneity leads to transient suppression of the COVID-19 epidemic, not herd immunity, https://www.pnas.org/content/118/17/e2015972118.short; Burki, Herd Immunity for COVID-19, https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30555-5/fulltext?utm_content=buffer6eaeb&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer. The current director of the CDC mentions similar concerns: https://www.foxnews.com/health/no-magic-target-herd-immunity-walensky. In total, calculations like those set forth by Dr. McCullough are highly error prone because of uncertainly related to the included variables. *See* https://www.nature.com/articles/d41586-021-00728-2.

College Aged Individuals and COVID-19

45. Although the mortality rate for college aged students is lower than other age groups, I disagree that there could be "no risk" of infection. The purpose of mass vaccination is also to protect individuals who are at higher risk of poor outcome or unable to mount an effective immune response. Older individuals, those with problems with their immune system, and those on certain medications that interfere with the development of an immune response may not have the same protections as a typical college-aged student when vaccinated or infected naturally with the virus.

46. We have learned over the last year that our students, faculty, and staff are very much members of their communities; they interact and engage consistently within the counties in which they live. In any epidemic, infections spread through vulnerable links in the chain until eventually resulting in morbidity and mortality in hosts that are less protected. Indeed, our

constituency also includes a number of vulnerable individuals for both bad outcomes from COVID as well as inability to mount a strong response to the vaccine.

47. The goal of universal vaccination is not limited to individual protection (even though there is very strong evidence for this), but includes community-wide protection — to reduce the total amount of all *exposures* to COVID-19, not just infections. Each exposure is potential for transmission to a vulnerable individual, and these vulnerable individuals may be vulnerable by choice or despite their best efforts to be immune.

48. In addition, the long-term consequences of natural COVID-19 infection are still unknown. Even "long COVID" can affect young adults at high levels and lead to long term debility. *https://health.ucdavis.edu/health-news/newsroom/studies-show-long-haul-covid-19-afflicts-1-in-4-covid-19-patients-regardless-of-severity/2021/03*; *https://healthblog.uofmhealth.org/childrens-health/long-haul-covid-kids*; *https://www.usnews.com/news/health-news/articles/2021-02-23/whats-wrong-with-me-young-covid-survivors-battle-long-haul-symptoms*. There is still much unknown here. Compared with the Covid-19 Vaccines whose platforms have now been used for decades, the uncertainty around the consequences of infection with a novel virus, especially in relation to long term side effects and sequellae, presents an undue risk. Pardi et al, mRNA vaccines- a new era in vaccinology, *https://www.nature.com/articles/nrd.2017.243*.

49. In summary, though the morbidity and mortality rate in the college age group is low, it is not zero. It is coupled with many unknowns, and infections in this population potentially drive infections in the community.

50. Moreover, not all studies exonerate students for contribution of spread in their surrounding county. Bosslet, et al, The effect of in-person primary and secondary school

instruction on county-level SARS-COV-2 spread in Indiana, *https://www.medrxiv.org/content/10.1101/2021.03.17.21250449v1;* Courtemanche et al, School Reopenings, Mobility, and COVID-19 spread: Evidence from Texas, *https://www.nber.org/papers/w28753;* Andersen et al, College Openings, Mobility, and the Incidence of COVID-19, *https://www.medrxiv.org/content/10.1101/2020.09.22.20196048v1;* Lu et al, Are College Campuses Superspreaders? A data-driven modeling study, *https://www.tandfonline.com/doi/full/10.1080/10255842.2020.1869221*.

51. Regional differences in county "spill-over" from campus epidemics are likely related to variations in infection prevention strategies employed at the campuses with more robust strategies leading to less "spill-over." The most robust strategy is having as many people immune as possible and this is best (and most safely) achieved by vaccination.

52. All individuals are equally likely to catch COVID-19. There is no protection from infectivity or infectiousness in the college age group. This group may be more likely to be asymptomatic, but spread is certainly still very possible as IU and many other colleges across the nation, experienced firsthand over the last year. *https://www.nytimes.com/interactive/2020/us/covid-college-cases-tracker.html*.

Asymptomatic Spread

53. Very quickly in the pandemic, the medical community learned that ignoring asymptomatic spread of this virus leads to propagation. As many as 30% of patients with COVID-19 never develop symptoms. Johansson et al, SARS-COV-2 Transmission from people without COVID-19 symptoms and it is estimated that more than half of all transmissions are from individuals who are asymptomatic; Johansson et al, *https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2774707*. This assessment has

been supported by the CDC. Bender et al, *https://wwwnc.cdc.gov/eid/article/27/4/20-4576_article*; Infectious viral loads start increasing before symptom development; Sakurai, et al, Natural History of Asymptomatic SARS-COV-2 Infection, *https://www.nejm.org/doi/full/10.1056/NEJMc2013020*; The Natural History and Transmission Potential of Asymptomatic Severe Acute Respiratory Syndrome Coronavirus 2 Infection, *https://academic.oup.com/cid/article/71/10/2679/5851471*.

54. Isolation by symptoms alone is not the consensus opinion of medical experts, which is why most states in the U.S. as well as around the world recommend quarantine of exposed individuals. This is because symptoms do not predict infectivity and it is safer to stay home through the duration of an infectivity window after an exposure in order to protect the community.

55. Masking is also an effective and evidence-based intervention to help stem the spread of COVID-19, even in asymptomatic individuals. Although this protection is significantly less potent than immunity by vaccination, ongoing masking of unvaccinated individuals is a potential stopgap for those unable to be vaccinated. Unmasked and unvaccinated individuals put themselves at additive risk of infection as well as those around them that are unable to be vaccinated or mount a sufficient immune response.

COVID Treatments

56. Reliable data on treatment for COVID-19 is still lacking. Most of the regimens listed in Table 5 of Dr. McCullough's Report (p. 16) have been proven to be ineffective in clinical trials despite hypothesized benefit. Indeed, some have even caused patient harm.

57. Vitamins and medications like:

Zinc (Yao, et al, The minimal effect of Zinc on the survival of hospitalized patients with

COVID-19: An observational study, Chest 2021);

Hydroxychloroquine (Lewis et al, The efficacy and safety of hydroxychloroquine for COVID-19 prophylaxis: A systematic review and meta-analysis of randomized trials *https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0244778*; Kashour et al, Efficacy of Chloroquine or hydroxychloroquine in COVID-19 patients: a systematic review and meta-analysis, *https://academic.oup.com/jac/article/76/1/30/5919602?login=true*);

Ivermectin (Schmith, et al, The Approved Dose of Ivermectin Alone is not the Ideal Dose for the Treatment of COVID-19, *https://ascpt.onlinelibrary.wiley.com/doi/full/10.1002/cpt.1889*);

Azithromycin (Escheverria-Esnal et al, Azithromycin in the treatment of COVID-19: a review, *https://www.tandfonline.com/doi/full/10.1080/14787210.2020.1813024*);

Doxycycline (Narendrakumar et al, Potential effectiveness and adverse implications of repurposing doxycycline in COVID-19 treatment, *https://www.tandfonline.com/doi/full/10.1080/14787210.2021.1865803*);

Inhaled Budesonide (Agusti et al, Early Treatment with Inhaled Budesonide to prevent clinical deterioration in patients with COVID-19, *https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(21)00171-5/fulltext*);

have not been studied in rigorous head-to-head trials to determine actual benefit, have negative consequences, or have been associated with patient harm. Their use has been thoroughly discredited and discouraged by the CDC/NIH. *https://www.covid19treatmentguidelines.nih.gov/about-the-guidelines/whats-new/*.

58. At IU Health and many other centers, the adult treatment regimen for COVID-19

includes Dexamethasone, Remdesivir, Tocilizumab, and Baricitinib. All of these agents are restricted to patients who have moderate to severe disease (minimal requirement of supplemental oxygen). Dexamethasone, Tocilizumab and Baricitinib are for patients with severe manifestations for disease (high flow oxygenations, non-invasive mechanical ventilation, and mechanical ventilation). These recommendations in the hospital are based on the high-quality studies showing benefit in these populations; however, there is still back-and-forth data even with these agents.

59. The evidence base for treatment is still very uncertain as evidenced by the lack of primary literature support for each individual regimen by Dr. McCullough. Successful outpatient management of COVID in some patients can be very challenging, and even if an individual is able to avoid hospitalization with investigational therapies, this does not speak to the consequences of infectious spread in the people who they live with, their vulnerabilities, and their ability to obtain care. Prevention still remains the key driver for avoiding morbidity and mortality from COVID-19 of which the vaccines are our most potent tool.

COVID Vaccines

60. All three COVID-19 Vaccines have been studied in robust multi-centered, international, randomized-controlled trials and proven both effective and safe in millions of people.

61. All three COVID-19 Vaccines have demonstrated a very high rate of efficacy (Pfizer 95%, Moderna 94.1%, Johnson & Johnson 72%). *https://www.yalemedicine.org/news/covid-19-vaccine-comparison*. These rates are much higher than annual influenza vaccination (30-60% effective depending on the year), which is a mandated annual vaccine at many universities. Breakthrough infections are possible with any

vaccine, but when you look at the amount vaccinated, these numbers are very low (0.05% in Indiana). *https://www.whas11.com/article/news/health/coronavirus/indiana-covid-breakthrough-case-vaccine-differences/417-e62d4d8a-a044-4816-a50b-aceddd6741e8*). I would note that we also have breakthrough cases after natural infection (0.65%). *https://www.eurekalert.org/pub_releases/2021-03/l-tls031821.php*.

62. Overall, these are some of the most effective vaccines that have ever been developed.

63. There is currently no evidence of genotoxicity, mutagenicity, teratogenicity and oncogenicity in any of the EUA-approved COVID vaccines.

64. A formal FDA approval for safety requires 6 months of data. These outcomes would require decades of research (Kostoff et al, COVID-19 vaccine safety, *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7521561/*) and are unnecessary based on the mechanism of vaccine action. In the cell, DNA in the nucleus encodes for a messenger (RNA) that leaves the nucleus and utilizes the cellular machinery in the cytoplasm to make proteins that do the work of the cell. The RNA vaccines utilize cellular machinery to make a protein that looks like the main target of our natural immune system to the SARS2 virus. The current lay public suspicions regarding mutagenesis take a backwards view of how RNA works in the cell and are not currently supported by consensus opinion. Since the vaccines do not interact with DNA, they do not lead to mutations, gene damage, or the development of cancers. Cimolai et al, Do RNA vaccines obviate the need for genotoxicity studies? *https://academic.oup.com/mutage/article/35/6/509/5995048?login=true*; *https://www.mskcc.org/coronavirus/myths-about-covid-19-vaccines*; *https://news.llu.edu/health-wellness/expert-debunks-5-covid-19-vaccine-misconceptions*.

65. There are many medications and vaccines that we use today that have not had these studies. Investigation into these areas should be based on clinical suspicion and hypothesized links of which there are neither currently for the three COVID-19 Vaccines. Further hypothesized risks of the vaccine are dwarfed by the very real risk of actual COVID-19 infection among the college constituency and in their communities.

66. While the three currently available vaccines are made of the building blocks of RNA, they are not genes, but are messenger scripts for making a protein. Their safety has been repeatedly confirmed in randomized controlled trials with no difference in adverse outcomes between vaccinated and unvaccinated individuals. There is no evidence that the spike protein itself injures our body's organs. The spike is an entry receptor for the virus to get into cells and the major target of our immune system. The spike protein itself cannot damage tissues, cause infections, or lead to complications. The immune response to the spike protein may be associated with some adverse outcomes like clotting and myocarditis; however, the risks of these outcomes associated with the vaccine are dwarfed by the risks of these outcomes associated with COVID-19 infection itself. Torjesen, COVID-19: Risk of cerebral blood clots from disease is 10 times than from vaccination, study finds, *https://www.bmj.com/content/373/bmj.n1005.full*; Wise et al, COVID-19: Should we be worried about reports of myocarditis and pericarditis after mRNA vaccines?, *https://www.bmj.com/content/373/bmj.n1635*).

67. As an example, the rate of myocarditis in all recipients is 13/1,000,000 vaccines administered (32/1,000,000 in males aged 12-39). *https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2021-06/03-COVID-Shimabukuro-508.pdf*. In contrast, 2.3% of collegiate athletes who had recovered from COVID-19 had evidence of myocarditis on heart imaging. Daniels et al, Prevalence of Clinical and

Subclinical Myocarditis in Competitive Athletes with Recent Sars-CoV-2 Infection: Results from the Big Ten Covid-19 Cardiac Registry, https://jamanetwork.com/journals/jamacardiology/fullarticle/2780548.

68. The infection of COVID-19 itself puts college-aged students at higher risk for myocarditis than the vaccine. In addition, all vaccine associated myocarditis patients have survived and were treated effectively. https://whyy.org/articles/myocarditis-and-the-covid-19-vaccine-what-to-know-about-rare-heart-inflammation/. Because of all of this, the CDC continues to recommend COVID vaccination for this younger age group. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/myocarditis.html.

69. Although the risk of cerebral sinus thrombosis after the Johnson & Johnson vaccine is significant, it occurs with incredibly low probability and there is no proof of causation between the vaccination and myocarditis. https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2021-04/03-COVID-Shimabukuro-508.pdf. While the vaccines may have statistics that support an association of adverse outcomes, it is important not to imply causality until we are sure. The Johnson & Johnson vaccine provides very meaningful benefit to a college-aged population given its ease of administration as one dose. Additionally, IU students are able to receive whichever of the three COVID-19 vaccines they prefer if they are personally concerned about this potential association.

Vaccination after COVID-19 infections

70. The CDC continues to recommend vaccination for those who have been infected naturally with COVID-19 and there is emerging evidence that vaccination may provide a broader spectrum of protection to variants than natural infection (https://directorsblog.nih.gov/2021/06/22/how-immunity-generated-from-covid-19-vaccines-

differs-from-an-infection/).

71. There is no strong data for or against vaccination after natural infection https://www.nature.com/articles/d41586-021-01609-4. We may have this data in the future, but right now, we do not have accurate ways to diagnose prior infection. This leads to huge challenges with trying to figure out who does and does not need the vaccine. Until this data is looked at in a systematic and controlled fashion, more "boosters" to immunity in the form of a COVID-19 Vaccine are likely beneficial to avoiding infection even despite mild side effects that are transient and benign.

72. Another major concern will be availability of data. There will consistently be new variants of COVID that will be selected out by vaccination and natural infection. These will be allowed to continue to mutate as long as there is susceptible population available. We have much better data for efficacy of vaccines against variants than we do for efficacy of natural immunity against variants. This is because we know exactly when immunity is established and the trajectory over time. Without vaccination, there will be lingering concerns about breakthrough variants leading to reinfection that will be more difficult to study internationally and provide guidance to the cohort of our population that has not gotten the vaccine.

73. It is entirely possible that the vaccine provides a broader immunity than natural infection. It may be that people who were previously infected have a higher rate of vaccination side effects after the first dose of the vaccine, but these symptoms are generally mild and not dangerous. There are no reports of serious, life-threatening safety concerns for previously infected individuals.

74. The preprint article from Raw et al referenced in paragraph 63 of Dr. McCullough's declaration references "severe side effects" which include fever, fatigue, myalgia,

arthralgia, and lymphadenopathy. From a clinical perspective, these are easily managed at home with over-the-counter medications and do not require an escalation in care. This is a misleading way to bucket side effect profiles, and even the most "severe" cited are mild in contrast to the viral infection itself.

75. We may learn that those previously infected do not need both shots of the vaccine, but currently the CDC still recommends both doses even after natural infection. These mild symptoms are acceptable from a public health perspective when weighed against the risks of repeat natural infection (which can be truly severe, resulting in hospitalization or death).

76. Additionally, we still have no reliable way to confirm previous exposure to COVID. Serologic tests for COVID-19 "antibodies" have a wide range of specificity (and vary across platform).

77. Using a serologic test to equate to immunity is not evidence-based and not recommended by the CDC. *https://www.cdc.gov/coronavirus/2019-ncov/testing/serology-overview.html*.

78. COVID also has syndromic overlap with many other respiratory infections and previous consistent symptoms alone cannot be grounds for proof of immunity. Even if using the gold standard PCR test, there is a wide range in duration of immunity after PCR positivity, and PCRs can be positive for months after natural infection. This can make it very challenging to set the onset of immunity for an individual. Pragmatically, the only surefire way to assure effective immunity is vaccination.

Potential Adverse Events

79. The Vaccine Adverse Event Reporting System (VAERS) is a *passive* reporting system. This means anyone can report any symptom they want after vaccination. These are each

combed through in order to identify trends, but the majority of symptoms are mild and are a result of the normal immune response to the vaccine.

80. VAERS reports and percentages have to be taken into context with prevalence of the disease. If there was a meningococcal pandemic and we were vaccinating individuals at higher rates, we may see higher percentages of adverse events reported due to heightened public awareness. It is not a fair comparison from a rare disease to a hyper-prevalent novel disease with a new vaccine that has a lot of entrenched (and, in my opinion, inappropriate and unfounded) public uncertainty.

81. Additionally, it is important to distinguish between association and causation. Adverse effects are possible with any vaccine, but the decision to administer the vaccine is based on the assessment of benefit over that risk. Regarding the risk of adverse events in those 18 to 29 years old, it is not surprising they are reporting more given their more robust immune responses. Again, most of these reports are of mild generalized symptoms.

82. The literature referenced in paragraph 48 of Dr. McCullough's declaration, cited in support of the medical community acknowledging the adverse effects of vaccines, links to a study in mice, not humans. Additionally, while the CDC does acknowledge these side effects, they still continue to strongly encourage vaccination of all those eligible given the benefit to the entire population.

83. The British health regulator has also reviewed the data requested and concluded the benefits outweigh the risks. *https://healthfeedback.org/claimreview/yellow-card-scheme-for-adverse-events-does-not-suggest-any-new-side-effects-of-covid-19-vaccines-tess-lawrie/*.

IU's Policies

84. Indiana University will not be performing research on students or constituents

getting the COVID vaccine without their express consent and in alignment with the local IRB policies and procedures. All studies proving efficacy and safety of the vaccine were done with critical event committees, data safety monitoring boards, and ethics committees in place.

85. IU only plans to mandate the vaccine in age groups approved by the FDA. While the WHO recommended that vaccinating children was *less urgent* than adults, WHO still recommended vaccination. *https://healthfeedback.org/claimreview/the-world-health-organization-states-that-covid-19-vaccination-for-children-is-less-urgent-but-doesnt-recommend-against-it/*. The CDC continues to recommend children 12 years and older get the vaccine. *https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/adolescents.html*.

86. IU's COVID-19 Vaccine Policy allows exemptions for pregnant women. IU follows the recommended CDC list for vaccine exemptions. *https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html*.

F. Conclusion

87. In my expert opinion, a COVID-19 vaccine mandate is the only safe and reliable way to assure lack of spread of COVID among our students and our communities and prevent morbidity and mortality. While COVID does not necessarily cause disproportionate bad outcomes in our constituency, any bad outcome from COVID is potentially avoidable with the vaccines where the benefit dwarfs the potential rare risks that may not be causally linked. The vaccines used for COVID are based on technology that has been developed over decades and have repeatedly been shown to be safe when given to millions of patients. This is not experimentation. This is application of known science to a novel pathogen with uncertain and threatening immediate and long-term consequences to our students, faculty, staff, and

communities at large. Given that this virus can be infectious despite an asymptomatic host and that not everyone can mount an immune response after vaccination, an individual's choice to remain unvaccinated puts others around them in the community at risk. Ultimately, the benefit to multiple college students being vaccinated has far-reaching benefits for the community as it relates to reduction in spread, avoidance of variant selection, and reductions in morbidity and mortality going into an uncertain season.

III. Selected List of Additional Materials Reviewed

1. *See, e.g.*, Centers for Disease Control & Prevention ("CDC"), *COVID-19 Vaccines for Children and Teens* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/adolescents.html

2. CDC, *Benefits of Getting a COVID-19 Vaccine* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits.html.

3. CDC, *People with Certain Medical Conditions* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html

4. CDC, *People with Underlying Medical Conditions at Increased Risk from COVID-19* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/underlying-conditions.html

5. Indiana's Novel Coronavirus Response (last visited June 27, 2021), *available at*: https://www.coronavirus.in.gov/.

6. CDC, *Changing Age Distribution of the COVID-19 Pandemic-United States, May-August 2020* (pub. Oct. 2, 2020), *available at*: https://www.cdc.gov/mmwr/volumes/69/wr/mm6939e1.htm

7. *Tracking Coronavirus Cases at U.S. Colleges and Universities*, The New York Times (last updated May 26, 2021), *available at*: https://www.nytimes.com/interactive/2021/us/college-covid-tracker.html

8. CDC, COVID Data Tracker, Nationwide Commercial Laboratory Seroprevalence Survey (last visited June 27, 2021), *available at*: https://covid.cdc.gov/covid-data-tracker/#national-lab.

9. Indiana COVID-19 Data Report (last visited June 27, 2021), *available at*: https://www.coronavirus.in.gov/

10. IU COVID-19 Testing Dashboard (last visited June 27, 2021), *available at*:

https://www.iu.edu/covid/dashboard/all.

11. CDC, *COVID-19 Vaccines Are Free to the Public* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/no-cost.html

12. CDC, *Key Things to Know about COVID-19 Vaccines* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/keythingstoknow.html

13. Harvard School of Public Health, *Can herd immunity stop COVID-19?* (last visited June 27, 2021), *available at*: https://www.hsph.harvard.edu/news/hsph-in-the-news/can-herd-immunity-stop-covid-19/.

14. CDC, *Guidance for [IHEs]* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/community/colleges-universities/index.html

15. State of Indiana Vaccination Information and Planning, *About the vaccine*, *available at*: https://www.coronavirus.in.gov/vaccine/

16. *COVID-19 Vaccine: It's our shot, Hoosiers* (updated June 5, 2021), *available at*: https://www.coronavirus.in.gov/files/21_IN%20Vaccine%20effectiveness_6-2.pdf

17. ISDH COVID-19 Vaccine FAQs (last updated Mar. 31, 2021), at 1, *available at*: https://www.coronavirus.in.gov/files/General%20Tool%20Kit%20Condensed%20FAQ%20and%20Links%203.29.21.pdf

18. ISDH COVID-19 Vaccine Fact Sheet (pub. Jan. 2021), *available at*: https://www.coronavirus.in.gov/files/Fact%20Sheet.pdf

19. CDC, *Safety of COVID-19 Vaccines* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/safety-of-vaccines.html

20. ISDH, *Variant Details* (last visited June 27, 2021), *available at*: https://www.coronavirus.in.gov/map/VariantDetails.pdf

21. CDC COVID-19 Info., *Frequently Asked Questions about COVID-19 Vaccination* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/faq.html

22. CDC, *Myocarditis and Pericarditis Following mRNA COVID-19 Vaccination* (last visited June 27, 2021), *available at*: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/myocarditis.html

23. Declaration of Peter A. McCullough, MD, MPH (June 28, 2021)

IV. Other Testimony & Compensation

I have not previously provided expert testimony in litigation.

This declaration is being provided in addition to my duties of teaching, patient care, and service on the Restart Committee. I am being compensated for my work in this matter at a rate of $500 per hour.

I hold all the above opinions to a reasonable degree of professional certainty and probability based upon the records and information that I reviewed and based upon my education, training, and professional experience. My opinions in this report are based on only the information that I have considered to date. I reserve the right to amend and supplement this report and any of my opinions in it consistent with all applicable procedural rules.

Date: 7/1/2021

Cole Beeler MD

Cole Beeler, M.D.

Exhibit A

CURRICULUM VITAE

NAME: Cole Beeler
Contact Information:
Emerson Hall, Rm 445
Indianapolis, IN, 46202
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F: 317-944-8660

EDUCATION:

POSTDOCTORAL

Institution	Degree	Date Awarded
Indiana University School of Medicine Indianapolis, IN	Internship, Internal Medicine	2012
	Residency, Internal Medicine	2015
	Fellowship, Infectious Diseases	2017

GRADUATE

Institution	Degree	Date Awarded
Indiana University School of Medicine Indianapolis, IN	M.D.	2011

UNDERGRADUATE

Institution	Degree	Date Awarded
Indiana University Bloomington, IN	B.S. Biology	2007

APPOINTMENTS:

ACADEMIC

Institution	Rank	Inclusion dates
Indiana University School of Medicine	Assistant Clinical Professor	7/2017 to current
Indiana University School of Medicine	Associate Fellowship Director	12/2018 to current
Indiana University School of Medicine	Key Clinical Educator for Division of Infectious Diseases	12/2018 to current
Indiana University School of Medicine	Director of Symptomatic Testing, COVID Medical Response Team	5/2020 to current

NON-ACADEMIC

Institution	Rank	Inclusion dates

Indiana University Health	University Hospital Medical Director of Infection Prevention and Control	7/2017 to current

LICENSURE, CERTIFICATION, SPECIALTY BOARD STATUS

Credential	Number	Inclusion dates
Indiana Medical License	01074103a	5/30/2014 to 10/31/2021
Certification in Internal Medicine	354639	2014-2024
Certification in Infectious Diseases	354639	2017-2027

PROFESSIONAL ORGANIZATION MEMBERSHIPS:

Organization	Inclusive Dates
Infectious Disease Society of America	2015 to current

PROFESSIONAL HONORS AND AWARDS:

SERVICE

Award Name	Granted By	Date Awarded
Outstanding Intern- Internal Medicine	Internal Medicine Residency	2012
Outstanding 3rd year Resident- Internal Medicine	Internal Medicine Residency	2015
Resident's Choice Fellow of the Year	Internal Medicine Residency	2016
Outstanding Young Clinician Award	Indiana University School of Medicine	2020
IU Bicentennial Medal Award	Indiana University	2020
System Services Values Leadership Award	Indiana University Health	2020

OVERALL/OTHER

Award Name	Granted By	Date Awarded
Jay Thomas Memorial Award in Physiology	Indiana University School of Medicine	2008
John Van Nuys Memorial Fellowship	Indiana University School of Medicine	2008
Class of 1978 R.C. Powell Scholarship	Indiana University School of Medicine	2009
Charles C. Odya Award in Pharmacology	Indiana University School of Medicine	2009
Ronald H. Doneff Scholarship	Indiana University School of Medicine	2010
Gold Humanism Honor Society	Indiana University School of Medicine	2012

PROFESSIONAL DEVELOPMENT:

Course/Workship Title	Provider	Date
Eskenazi Hospital Chief Residency	Indiana Unversity School of Medicine	2015-2016
Clinical Education Teaching Program	Indiana University School of Medicine	2017

Sailing the High Seas Leadership Development	Indiana University Health	2017
IU Talk Session	Indiana University Health	2017
Redcap Training	Indiana Unversity School of Medicine	2018
The Value of Social Media	Indiana Unversity School of Medicine	2018
Medical Education Combinator	Indiana Unversity School of Medicine	2018

TEACHING:

TEACHING ASSIGNMENTS:

POSTGRADUATE

Course #	Short Title	Format	Role	Term
93MD700	Clinical Infectious Disease	Clinical	Director	2018 to current
93MD710	Infectious Disease Research Elective	Research	Director	2018 to current
93MI690	MS3 Medicine Clerkship- ID	Clinical	Sub-Director	2019 to current

MENTORING

Individual	Role	Inclusive Dates
Zahir Sheikh	Medical School Research Mentor	2018-2019
Brenna McElderry	Medical School Mentor	2018-2019
Kishan Shah	Medical School Mentor	2018-2019
Braden Sciarra	Medical School Mentor	2018-2019
Arefin Chowdhury	Residency Research Mentor	2018-2019
Madhu Reddy	Fellowship Research Mentor	2017-2019
Madiha Tahir	Fellowship Mentor	2017-2019
Jonathan Ryder	Residency Research Mentor	2018-2020
Jaewon Jung	Medical School Mentor	2018-2019
Junstin Hendrix	Medical School Mentor	2019-2020
Nick Litchin	Medical School Mentor	2019-2020
Wiaam Elkhatib	Medical School Mentor	2019-2020
Chizelle Onochie	Medical School Mentor	2018-2020
Amanda Agard	Fellowship Mentor	2018 to current
Humaira Khan	Medical School Mentor	2020 to current
Matthew Stack	Residency Research Mentor	2020 to current
Yebon Oh	Medical School Mentor	2020 to current
Taylor Munsch	Medical School Mentor	2020 to current
Aaron Smith	Medical School Mentor	2020 to current
Omar Elsheikh	Fellowship Research Mentor	2021 to current
Beth Nagel	Residency Research Mentor	2021 to current

TEACHING ADMINISTRATION AND CURRICULUM DEVELOPMENT:

Associate Fellowship Director	Fellowship in Infectious Diseases	2018 to current
ID Clinical Track Development	System for structure of ID Fellowship	2018 to current
Infection Prevention Curriculum	Curriculum for Infectious Disease Fellows	2018 to current
Antibiotic Stewardship Curriculum	Implementation and Development of IDSA curriculum to fellows	2019 to current
Advanced Antibiotic Stewardship Curriculum	Implementation and Development of IDSA curriculum to fellows	2021 to current
VIPER: YouTube Channel (https://www.youtube.com/channel/UC3HwM1yj5nhPOjWffgGrM9Q/videos)	Videos for training and education in Infection Prevention for IU Health	2019 to current
eRVU educational development	Training for the Division of Infectious Diseases	2019 to current
Special Elective in ID	"Build your own elective" implementation with the Internal	2019 to current
Delivering Appropriate Feedback	Training for the Division of Infectious Diseases	2020 to current
ID Clinical Conference Director	Weekly Lecture with attendees from across the state and country	2019 to current

INVITED PRESENTATIONS- TEACHING

LOCAL

Title	Organization	Date
Intern Core Lecture Series	Indiana University School of Medicine	2014 to 2016 (yearly)
University ID Clinical Conference	Indiana University School of Medicine	2015 to current (monthly)
Eskenazi ID Clinical Conference	Indiana University School of Medicine	2015 to 2020 (monthly)
Methodist ID Clinical Conference	Indiana University School of Medicine	2015 to 2020 (monthly)
Infectious Disease Curriculum Session: Endocarditis	Indiana University School of Medicine	2015 to current (monthly)
Quality Minute: 3 Arm Gowns	Indiana University Health	2017
Host Defense Medical Student Lecture	Indiana University School of Medicine	2017
C diff Guideline Update	Indiana University School of Medicine	2018
Let me see that 1,2 Step VIPER	Indiana University Health	2018
Osteomyelitis for the Nurse Practitioner	Eskenazi Health	2018
Your Foley is Contaminated VIPER	Indiana University Health	2018
Empiric Antibiotics	Eskenazi Health	2018

HIV for Residents	Indiana University School of Medicine	2018
IMPACT: GI Infections	Indiana University School of Medicine	2018
Immunodeficiency for Residents	Indiana University School of Medicine	2018 to current (monthly)
Procalcitonin for Hospitalists	Indiana University Health	2018
UTI for Hospitalists	Indiana University Health	2018
Quality Minute: Two Step C diff Testing	Indiana University Health	2018
Urology C Diff Lecture	Indiana University Health	2018
Quality Minute: Influenza	Indiana University Health	2018
Transplant Quality Review	Indiana University Health	2018 to current (monthly)
Grand Rounds- Oyez Lectures	Indiana University School of Medicine	2019
Seeing a Difference in C diff	Indiana University Health	2019
STD Lecture for Clinical Therepeutics	Indiana University School of Medicine	2019
Procalcitonin VIPER	Indiana University Health	2019
Isolation 2.0 VIPER	Indiana University Health	2019
CHG VIPER	Indiana University Health	2019
Winter is Coming VIPER	Indiana University Health	2019
IMPACT: Pneumonia	Indiana University School of Medicine	2019, 2020
Aint' Nothin but a CHG Thang VIPER	Indiana University Health	2019
MICU Residen Orientation	Indiana University Health	2019 to current (monthly)
SICU Resident Orientation	Indiana University Health	2019 to current (monthly)
IMPACT: Antibiotic Stewardship	Indiana University School of Medicine	2019
Chest Conference: MICU HAI Review	Indiana University Health	2019
Is a Foley ever Indicated	Eskenazi Health	2019
Critical Care Grand Rounds- Is a Foley Ever Indicated	Indiana University School of Medicine	2019
Chest Conference: PPE Use	Indiana University School of Medicine	2020
C diff Lecture for GI Fellows	Indiana University School of Medicine	2020 to current (yearly)
Dermatology Grand Rounds- Ectoparasites	Indiana University School of Medicine	2020
Ophthalmology Grand Rounds- COVID	Indiana University School of Medicine	2020
Chaplaincy Department lecture- COVID	Indiana University Health	2020
GME PPE Training Video for new resident orientation	Indiana University School of Medicine	2020
EMS Lecture- COVID	Indiana University Health	2020
HIV Lecture for GI Fellows	Indiana University School of Medicine	2021
Diagnostic Stewardship for General Surgery	Indiana University School of Medicine	2021
Chest Conference: COVID	Indiana University School of Medicine	2021

REGIONAL

Title	**Organization**	**Date**
HIV Update for Family Practice	Indiana Academy of Family Physicians	2018
Community Acquired Pneumonia	Union Hospital	2018-2020 (yearly)

Is a Foley Ever Indicated?	APIC Regional Meeting	2019
Everyone's Infectious	Union Hospital	2019
Influenza Update	IUH E. Washington Clinic	2019
COVID Update	One America	2020
COVID Town Hall	IUPUI	2021 (x3)

NATIONAL

Title	**Organization**	**Date**
Teaching During COVID	ID Week (IDSA)	2020

SERVICE:

UNIVERSITY SERVICE

DEPARTMENT

Acitivity	**Role**	**Inclusive Dates**
Infectious Diseases Fellowship	Associate Fellowship Director	2018 to current
Key Clinical Educator	Division Representative	2018 to current

SCHOOL

Acitivity	**Role**	**Inclusive Dates**
Teaching Awards Committee	Member	2019 to current
Curriculum Council Clinical Component Committee	Member	2019 to 2020
Faculty Commnity Relations Committee	Member	2019 to 2020
Faculty Steering Committee	FCRC representative	2019 to 2020

CAMPUS

Acitivity	**Role**	**Inclusive Dates**

UNIVERSITY

Acitivity	**Role**	**Inclusive Dates**
COVID Medical Response Team	Director of Symptomatic Testing	2020 to current
COVID Outbreak Investigation and Response Team	Member/Reviewer	2020 to current
COVID Symptomatic testing Transition Team	Member	2020 to current

EALC Meetings- COVID Updates for President McRobbie	Presenter	2020 to current (weekly)
President's Cabinet Meetings- COVID updates	Presenter	2020 to current (biweekly)
IU Regional Dean's Meetings- COVID updates	Presenter	2020 to current (biweekly)
IU COVID Restart Committee	Member	2020 to current
IU Education Restart Committee	Member	2020 to current
GME Coronavirus Rapid Response Team	Member	2020 to current

PROFESSIONAL SERVICE

LOCAL

Organization	**Activity**	**Inclusive Dates**
Indiana University Health	Infection Control Research Committee	2017 to current
Indiana University Health	System Infection Control Committee	2017 to current
Indiana University Health	IP/MD System Dyad Committee	2017 to current
Indiana University Health	Quality Improvement Committee	2017 to current
Indiana University Health	Hand hygiene committee	2017 to 2020
Indiana University Health	CLABSI Harm Team	2017 to 2020
Indiana University Health	C diff Harm Team	2017 to 2020
Indiana University Health	Antibiotic Stewardship Committee	2017 to current
Indiana University Health	AIM Pathology Laboratory Committee	2017 to current
Indiana University Health	MICU end of life culturing QI project	2018
Indiana University Health	CLABSI Harm Team Toolkit Development	2018
Indiana University Health	Poor Peripheral Access Algorithm	2018
Indiana University Health	Foley Point Prevalence Survey	2018
Indiana University Health	3E CLABSI Project	2018
Indiana University Health	Device Round Standardization	2018
Indiana University Health	Abdominal Transplant Quality Committee	2018 to current
Indiana University Health	CAUTI Harm Team	2018 to 2019
Indiana University Health	Influenza Incident Command	2018 to 2020
Indiana University Health	IP orientation for ICU residents	2018 to current
Indiana University School of Medicine	Residency Applicant Inverviewer	2018 to current
Indiana Univeristy School of Medicine	Faculty Awards Committee	2018 to current
Indiana University Health	Isolation 2.0 Curriculum Development	2019
Indiana University Health	MPCU CAUTI/C diff Harm pilot	2019 to current
Indiana University Health	Transplant CLABSI harm reduction QI project	2019 to current

Indiana University Health	BMT C diff reduction QI project	2019 to current
Indiana University Health	The "Basics" Team for Harm Reduction	2019 to current
Indiana University Health	Augmented C diff response development	2019
Indiana University Health	Device Indication Standardization Project	2019
Indiana University School of Medicine	Medical Response Team	2020 to current
Indiana University Health	COVID Incident Command	2020 to current
Indiana University Health	Diagnostic Stewardship System Development	2020 to current
Indiana University Health	Epidural Foley Project with Surgery	2020

REGIONAL

Organization	**Activity**	**Inclusive Dates**
Indianapolis patient safety coalition	Member	2017 to current
Orange Theory COVID Advisor	Advisor	2020 to current
College Park Church COVID Advisor	Advisor	2020 to current

NATIONAL

Organization	**Activity**	**Inclusive Dates**
Infectious Disease Society of America	Antibiotic Stewardship Education Committee	2017 to current

INVITED PRESENTATIONS – SERVICE

LOCAL

Title	Organization	Date
Don't trust the Pus	University Hospital	9/27/2017
Brace for Impact: The Flu and You	University Hospital	1/18/2018
Interview for Flu	WTHR	1/9/2018
Interview for MRSA	RTV6	11/3/2017
Interview for Flu	WTHR	10/12/2017

1. http://app.criticalmention.com/app/#clip/view/32671017?token=2642c46b-6c16-444b-88e7-f830ee2a1d45 (WISH)
2. http://wishtv.com/2018/03/22/flu-cases-declining-but-still-as-dangerous-doctors-say/ (WISH)
3. http://wishtv.com/2018/02/13/indiana-flu-deaths-nearly-seventeen-times-higher-than-this-time-last-season/ (WISH)
4. http://wishtv.com/2018/02/13/a-chilling-look-at-this-years-flu-season/ (WISH)
5. https://www.theindychannel.com/news/local-news/indianapolis/indianas-244-flu-related-deaths-include-3-kids-4-or-younger (WRTV)
6. http://app.criticalmention.com/app/#clip/view/32245731?token=f9de2a1d-7441-40b0-83c0-9072090b0ccf (WTHR)
7. http://app.criticalmention.com/app/#clip/view/33752168?token=4df7120b-76f4-4dc9-b29d-e0f54b00ba40 (WISH)

8. http://app.criticalmention.com/app/#clip/view/33764096?token=4df7120b-76f4-4dc9-b29d-e0f54b00ba40 (WISH)
9. http://app.criticalmention.com/app/#clip/view/32671015?token=2642c46b-6c16-444b-88e7-f830ee2a1d45 (WRTV)
10. http://indianapublicmedia.tumblr.com/post/172040087114/hospitals-lift-visitor-restrictions-as-flu-season (WFIU)

Interview for Flu	WTHR/NPR	10/18/2018
Interview for Chagas	WTHR	6/201/2019

REGIONAL

Title	Organization	Date
Community-Acquired Pneumonia	Union Hospital Terra Haute	1/17/2018

NATIONAL

Title	Organization	Date

INTERNATIONAL

Title	Organization	Date

PUBLICATIONS:

TEACHING
Refereed
Luther VP, Shnekendorf R, Abbo LM, Advani S, Armstrong WS, Barsoumian AE, Beeler CB, Bystritsky R, Cherabuddi K, Cohen S, Hamilton KW, Ince D, Justo JA, Logan A, Lynch JB 3rd, Nori P, Ohl CA, Patel PK, Pottinger PS, Schwartz BS, Stack C, Zhou Y. Antimicrobial Stewardship Training for Infectious Diseases Fellows: Program Directors Identify a Curriculum Need. Clin Infect Dis. 2018 Apr 16. doi: 10.1093/cid/ciy332.
Contribution- Curriculum development, manuscript editing

Non-refereed

RESEARCH/CREATIVE ACTIVITY
Refereed

Non-Refereed

SERVICE
Refereed

Chung, EK, Beeler, CB, Muloma, EW, Osterholzer, D, Damer, KM, Erdman, SM. Development and implementation of a pharmacist-managed outpatient parenteral antimicrobial therapy program. American Journal of Health-System Pharmacy. January 1, 2016 Vol. 73 no. 1 e24-e33.
Contribution- Manuscript development, editing

Beeler C, Dbeibo L, Kelley K, Thatcher L, Webb D, Bah A, Monahan P, Fowler NR, Nicol S, Judy-Malcolm A, Azar J. Assessing patient risk of central line-associated bacteremia via

machine learning. Am J Infect Control. 2018 Apr 13. pii: S0196-6553(18)30143-3. doi: 10.1016/j.ajic.2018.02.021.
Contribution- Project conception, implementation training, data collection, data analysis, manuscript writing, editing

Azar J, Kelley K, Dunscomb J, Perkins A, Wang Y, Beeler C, Dbeibo L, Webb D, Stevens L, Luektemey M, Kara, A, Nagy R, Solid CA, Boustani, M. Using the agile implementation model to reduce central line-associated bloodstream infections. Am J Infect Control. 2019 Jan;47(1):33-37. Doi: 10.1016/j.ajic.2018.07.008.
Contribution- Manuscript editing

Dbeibo L, Kelley K, Beeler C, Kara A, Monahan P, Perkins AJ, Wang Y, Brinkman A, Snyderman W, Hatfield N, Wrin J, Miller J, Webb D, Azar J. Achieving Clostridioides difficile infection Health and Human Services 2020 goals: Using agile implementation to bring evidence to the bedside. Infect Control Hosp Epidemiol. 2019. Dec 5:1-3. doi: 10.1017/ice.2019.337
Contribution- Manuscript editing

Beeler C, Kerley D, Davis C, Hazen D, Snyderman W, Lyons K, Sadowski J, Sweeney J, Debibo L, Kelley K, Webb DH. Strategies for the successful implementation of disinfecting port protectors to reduce CLABSI in a large tertiary care teaching hospital. Am J Infect Control. 2019 Dec;47(12): 1505-1507. doi: 10.1016/j.ajic.2019.05.016
Contribution- Project conception, implementation training, data collection, data analysis, manuscript writing, editing

Dbeibo, L., Brinkman, A., Beeler, C., Fadel, W., Snyderman, W., Hatfield, N., Sadowski, J, Wang Y, Kelley K, Webb D, Azar J, Kara, A. (2020). Utilizing a real-time discussion approach to improve the appropriateness of Clostridioides difficile testing and the potential unintended consequences of this strategy. Infection Control & Hospital Epidemiology, 41(10), 1215-1218. doi:10.1017/ice.2020.276
Contribution- Manuscript editing, scripting review

Dbeibo, L., Brinkman, A., Beeler, C., Kelley, K., Fadel, W., Wang, Y., Snyderman, W, Hatfield N, Sadowski J, Kara, A. (2020). Assessing the Efficacy and Unintended Consequences of Utilizing a Behavioral Approach to Reduce Inappropriate Clostridioides difficile Testing. Infection Control & Hospital Epidemiology, 41(S1), S58-S59. doi:10.1017/ice.2020.543
Contribution- Manuscript editing

Valinetz, Ethan MD; Beeler, Cole MD; Erdman, Sharon M. PharmD, FIDP. Outcomes of Orthopedic Hardware-Related Infection Treated Via a Public Teaching Hospital Outpatient Parenteral Antimicrobial Therapy Program, Infectious Diseases in Clinical Practice: December 28, 2020 - Volume Publish Ahead of Print - Issue -
Contribution- Case review, data analysis, resident mentoring, manuscript development and editing

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Contribution- Study Design, Manuscript editing

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Contribution- Literature search, Joint presentation with Heme/Onc, Resident mentorship, manuscript editing

Non-refereed

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